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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,196	06/30/2005	Hendrik Oevering	4662-39	7763

23117 7590 03/15/2007  
NIXON & VANDERHYE, PC  
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ARLINGTON, VA 22203

EXAMINER
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VALENROD, YEVGENY

ART UNIT	PAPER NUMBER
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1621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/541,196

Applicant(s)

OEVERING ET AL.

Examiner

Yevgeny Valenrod

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/06/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rulkens et al. (EP 0 005 291 A1) in view of Stemicarbon (British Patent 1,138,750). Instant claims 1-19 are directed towards a process for preparing cyclohexanone oxime. The limitations of the said process include: A distillation procedure as described in claim 1, recycling of the distilled starting material and point of reintroduction of the recycled starting material into the oxime syntheses zone, concentration of the product discharged from the oxime syntheses zone (claim 6), concentration of cyclohexanone and cyclohexanone oxime in the aqueous discharge from the oxime syntheses zone (claim 10), solvent limitations (claims 17-18) and phosphate buffered aqueous medium (claim 19).

*Determining the scope and contents of the prior art.*

Rulkens et al. teach a method for recovering cyclohexanone oxime from a solution of oxime in toluene by distillatory separation wherein the solution to be distilled results from an incomplete conversion of cyclohexanone into cyclohexanone oxime. They teach that such a solution can be obtained by making a solution of cyclohexanone in toluene react with hydroxylamine salt dissolved in an aqueous buffered solution (page 1 lines 1-10). Rulkens et al describe using two distillation columns, in which toluene is distilled off in the first column (first product according to instant claim 1), the remaining mixture is distilled in the second column where the oxime is separated as the bottom product (third product) and cyclohexanone is removed as a top product (second product) (page 3 columns 7-12). The distillation using two columns is described in example I (pages 3-4). According to the said example, the ratio of oxime/cyclohexanone in the second product is 48/177 (.27) (page 4 lines 2-3).

*Ascertaining the differences between the prior art and the claims at issue.*

The Process described by Rulkens et al. is a purification process and although they describe how the organic solution to be distilled can be obtained the details of the process are not taught by the disclosure. Rulkens et al. also fail to teach recycling of the second product into the oxime syntheses zone.

*Resolving the level of ordinary skill in the pertinent art.*

One of ordinary skill in the art is a chemical engineer. A chemical engineer of ordinary skill in the art has sufficient understanding of organic chemistry, is very familiar with various reactor types and is capable of making determinations as to what is the most efficient way to run a process.

### *Obviousness*

Recycling of second product:

Recycling the unreacted starting material to back into the reactor is well known and in the art. Doing so offers a financial incentive and one of ordinary skill in the art would find such a step obvious.

Reaction conditions:

Numerous methods for preparation of cyclohexanone oxime from cyclohexanone and hydroxylammonium are known in prior art. A person skilled in the art would find it know that the distillation procedure described by Rulkens et al. has practical utility only when it is combined with a process for producing cyclohexanone oxime wherein cyclohexanone oxime produced contains a solvent and unreacted cyclohexanone. It is therefore obvious to combine the said distillation procedure with any such process. As an example, the process of British patent 1,138,750 ('750) can be modified with the distillation procedure of Rulkens et al. "750 describes a process where cyclohexanone oxime is prepared by reaction cyclohexanone (supplied in toluene) and an aqueous hydroxylammonium phosphate. The process is exemplified in figure I of '750. Fig I shows the distillate from the distillation column (7) being delivered downstream from the

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cyclohexanone oxime removal line (9) and upstream the cyclohexanone/solvent feed (2) (the solvent and the ketone are supplied at the same level (limitation of claim 2). (stream moving in the direction of organic components (A to B)). '750 contacts the organic stream with a countercurrent of aqueous stream in the oxime syntheses zone.

In another process where cyclohexanone oxime is prepared according to the process of the instant invention, distillation is suggested as an energy efficient method of purifying the product (Blaauw et al. WO01/94297) (Page 6, lines 5-8). Using the distillation Rulkens et al. in such a process would be obvious to a person skilled in the art.

Concerning the amount of reagents feed into the cyclohexanone syntheses zone: "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The limitation of claim 16 is obvious in view of In re Aller.

Concerning the location of the feed for the second product. One skilled in the art would find it obvious to place the feed for the second product at an appropriate location(s) in the cyclohexanone oxime syntheses zone. The placement of the feed falls under optimization conditions since it governs the concentration of the starting material in the given portion of the reactor.

### ***Conclusion***

Claims 1-19 are pending.

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Claims 1-19 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yevgeny Valenrod whose telephone number is 571-272-9049. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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